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ABSTRACT

Middle level and senior high school principals and teachers can benefit from studies focusing on the relationship between teaching effectiveness and school characteristics, classroom management, teacher expectations, school climate, learning time, and learning/cognitive style. Research (Rutter et. al, 1979) shows that emphasis on academics, teacher-student interactions, incentives, and rewards make a difference in school outcomes. Classroom management studies conclude that academic achievement and student attitudes improve as more time is spent on task-oriented instructional activity presented clearly and professionally. Teachers' high expectations and ability to create positive, caring school climates contribute to high student achievement. Cognitive studies and learning style research help teachers know their students' abilities and skills. Such studies confirm that most students learn better from touching, doing, and experiencing than from lectures. Effective teachers are successful in planning and preparation, classroom management, and student evaluation, but the study concludes that the key to establishing and maintaining a climate conducive to academic achievement is effective administrative leadership. The small number of studies on teaching effectiveness beyond the elementary level demands, however, that conclusions remain tentative about effective teaching in middle level and senior high schools. (PB)

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Effective Teaching and Student Achievement

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National Association of Secondary School Principals
Reston, Va.

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Foreword

The origin of this publication was in a program conceived in the late 1970s by NASSP's National Advisory Committee of Professors of Secondary School Administration and Supervision. Members of this committee believed that the Association should sponsor a residence program for university and college professors interested in collaborating with the NASSP Research Department on a publication or project of mutual interest. The professor-in-residence program was the result; and Nicholas F. Troisi, dean of the Faculty of Professional Studies, State University of New York at Plattsburgh, was professor-in-residence during the fall of 1982. His expertise in school administration and the supervision of instruction provided what NASSP believed necessary to clarify the implications and application of the emerging research on effective teaching and instruction for secondary and middle level educators.

A comprehensive and unbiased look at the literature on effective teaching is critical at this time to provide middle level and senior high school principals and teachers with technical guidance in establishing new program directions. The profile of effective instruction that emerges emphasizes the complexity of the schooling process and the role of school-based leadership in any implementation effort.

NASSP is confident that practitioners will benefit from the suggestions and cautions provided by the author. Moreover, we urge researchers and policymakers to give more attention to the secondary level in this area of inquiry.

James W. Keefe
NASSP Director of Research

What is effective teaching? What can teachers do that will result in students learning more, doing better on achievement tests, passing the regents or other state examinations? What is the formula?

These are the principal's concerns.

The public, especially parents and the press, call for quality education.

Students are worried about what kind of education they are receiving. Will it allow them to compete successfully for jobs that are available, or for better paying employment?

Parents complain that their sons or daughters have a high school diploma but lack the competency to hold a job.

Legislators mandate competency exams for both students and teachers.

In a day of consumer awareness, the school—the provider—is held accountable to produce results with taxpayer money. No longer can we say, "The student, his IQ, his environment, his parents, the times are responsible for poor learning." Instead we hear "The school, the principal, the teachers are responsible." The cry is for effective schooling and teaching.

But how do we measure effectiveness in teaching?

Most classroom researchers have looked at four variables:

1. Personal—the training/teaching experience and out-of-school experiences, beliefs, and personality of the teacher;
2. Context—the classroom environment, classroom space, the geographical location (suburban, urban, or rural), number of students, student ability, quality of home nurturing;
3. Process—the learning activities in which teachers and students participate;
4. Product—what happens as a result of teaching, what students have learned as measured by tests, how they feel about the knowledge areas.

The measuring of teaching effectiveness is not a simple thing. Each classroom is unique. Each teacher makes judgments, handles behavioral situations, presents subject matter, and interacts with students based on that teacher's unique motives, purpose, personality, and experiences. Each classroom is an arena unto itself.

Studies in Teaching Effectiveness

Rosenshine found that as recently as 1972 fewer than 25 studies had been mounted on any specific variable of teacher behavior, and most of these had been conducted in elementary schools (reported in Natriello and Dornbush, 1980).

The literature since 1976 indicates a growing interest in research on teaching effectiveness as measured by student achievement—but again at the elementary level. The National Institute of Education (NIE) spurred much of this interest by establishing as its primary goal "educational equity...a state of affairs in which race, sex, and socioeconomic status of a student would no longer predict educational achievement." Moreover, NIE provided funding to support research on teaching variables having a relationship to student achievement.

The School and Teaching Effectiveness

Research tells us that the school does make a difference in teaching effectiveness. In 1979, Rutter and others published *Fifteen Thousand Hours*, a comprehensive report on parental, school, teacher, and ecological factors in the London, England, schools from 1970 to 74.

Rutter asked the question: "Do a child's experiences at school have any effect; does it matter what school(s) he goes to; and which are the features of schools that matter?"

Rutter concluded that schools do make a difference. He disagreed with the 1966 Coleman report that indicated schools have little influence on achievement independent of family background and social class. The Rutter study found that academic emphasis, teacher-student interactions, incentives, and rewards all make a difference in school outcomes. Levels of attendance, student behavior in school, delinquency, and academic attainment were significantly different from school to school. Rutter and his colleagues concluded that these differences were not a product only of differential student ability or family background.

Classroom Management and Teaching Effectiveness

The way teachers organize instruction in the various subject areas shows a clear relationship to student outcomes.

Evertson and others (1980) analyzed the responses of 39 English

teachers and 19 math teachers in a study of junior high schools in Texas. Teacher beliefs, expectations, and assumptions about teaching and instructional practices were noted. Student outcomes were measured by an achievement test, and student ratings of teachers were collected.

Teachers of high achieving math students:

- Ranked high in general likability;
- Took personal responsibility for management and discipline in their classes;
- Communicated to students the rules of class operation and expectations in their class.

Effective English teachers were likely to use fairly traditional methods. Their teaching effectiveness appeared to vary more with student ability level than did effective instruction in math. Effective English teachers usually:

- Used a whole class approach;
- Stressed punctuation and capitalization;
- Demanded that students pay attention to instruction and make up missed work.

Effective math and English teachers were self-confident and self-reliant in dealing with behavioral problems and managing the classroom. Students held trusting, caring, professional teachers in high esteem but did not necessarily achieve more in these teachers' classrooms.

Direct instruction methods were effective in math, less effective in English (Rosenshine, 1979). Evertson (1979) suggests that seventh and eighth grade English classes have numerous and variable instructional goals (i.e., communication skills, literature appreciation, composition). Basic skill mastery is not the primary goal as it is in math classes. English objectives are not easily pursued with a direct instruction approach; mastery of basic math skills is.

Evertson used the Texas data to assess the relationship between teacher behavior, student achievement, and student attitudes. She concluded that high achieving, high attitude classes show good organization, a high proportion of time spent on instructional activity, task-oriented instruction. Low achievement, low attitude classes were characterized as chaotic, unstructured, less task-oriented.

Borich and others (1979) have commented on the relationship of classroom management to teaching effectiveness. They concluded that direct instruction facilitates primary and lower level learning, but less structured teaching is important for higher level thinking and learning. Students should have more freedom when creativity and higher order

concept development are the desired goals. Borich suggests that "some of this freedom can be obtained by structuring tasks so pupils can apply understood rules and directions."

McConnell and Bowers (1979) studied 43 high school algebra classes in 13 schools. These authors reported that in a direct instructional approach, student learning was related to:

- *Task orientation*—the new information is presented in the context of past learning; the stage is set.
- *Clarity of presentation*—the vocabulary is understood, the presentation is well-planned and logical, and the teacher can be heard and understood.
- *Frequent probing* to improve student response—good questions are asked and rephrased to elicit well-thought-out responses which indicate the student understands the material.
- *Enthusiasm*—no monotone voices or deadpan faces.
- *Frequent teacher communication.*

Students rated teachers who enjoyed mathematics teaching as clearer, more enthusiastic, and less critical. These teachers used questions that elicited more thinking.

Worsham (1981) studied mathematics instruction in 12 junior high schools. The more effective teacher exhibited the following behaviors:

- Clearly indicated deadlines and enforced the deadlines. These teachers helped students develop strategies to meet deadlines, but unlike less effective teachers, did not extend the due date. They were businesslike.
- Emphasized care and accuracy in completing assignments. Work handed in with misspellings, on torn paper, or written in pencil was unacceptable. Correct grammar and correct labeling were required.
- Insisted on the student's attention to instruction.
- Monitored the class constantly to ensure students were working steadily and accurately.
- Maintained a work-oriented focus; specific motivational material was available for students who completed assignments.
- Followed up on assignments in class, graded homework assignments, and kept careful records of student work.
- Contacted students frequently about low grades.
- Stressed high-quality work. Accuracy and correctness were important, and students were urged to work to the best of their ability.

Huitt and Segards (1980) identified four additional characteristics of effective classrooms:

- Teaching attention to student characteristics, including prior learning and learning styles.
- Congruence among course goals, instruction, and the knowledge and skills assessed in tests.
- Amount of time the student actually spends learning the material.
- Degree of success the student experiences in educational tasks.

Stallings (1978) concentrated her research on secondary reading instruction. Data on 43 teachers and 905 students were collected by observation, a teacher questionnaire, and a reading achievement test. As in the Texas study, the more time spent on reading itself, the larger the gains in reading. The reverse also was true; in classes with high social interaction and misbehavior the reading gain was lower.

Positive feedback, acknowledgement or praise for correct responses, and further questioning when responses were incorrect or vague resulted in better reading scores. A positive and supportive environment where rules were clear and relationships among students were friendly produced better class attendance.

Morgan (1979) added to the attributes of the effective classroom. In an intensive six-month study of five social studies classes in three diverse high schools he observed that teachers who played an active role in student learning stimulated some student involvement. He also found that open classes marked by a variety of learning activities and teacher questioning resulted in increased and purposeful learning.

Teacher Expectations and Teaching Effectiveness

Guskey (1981), using data collected from 44 intermediate and high school teachers, found a significant relationship between the teacher's expectations in the first part of the school year and students' final exam scores and grades. Anderson (1982) observed that the teacher's high expectations go hand in hand with student achievement. Rutter and others (1979) surmised that "students were likely to work better if taught in an atmosphere of confidence that they can and will succeed in the tasks they are set."

The administrator, the teacher, and the student are likely to fulfill the expectations set for themselves. Expectation of success breeds success; expectation of failure breeds failure.

A Caring Climate and Teacher Effectiveness

Palonsky's (1977) study of an urban, bi-racial high school reinforced McConnell and Bowers' research, but differed from the Texas study. He concluded that academic studies are not very important in adolescents' lives (as most teachers had surmised). Teenagers value peer group activities and approval far more than any classroom activi-

ty. The student must have a positive, caring perception of the teacher, Palonsky observed, if the teacher is to receive that cooperation which will result in increased student achievement. Other studies confirm these findings.

Clements (1980) studied the relationship of teacher perceptions about classroom processes to student achievement. She concluded that teacher beliefs are related to high and low student achievement, and that a profile of teacher beliefs could prove useful in predicting teacher behavior and management effectiveness. Dunn and others (1980), analyzing the responses of 94 Dade County, Fla., superior teachers of disadvantaged children, reiterated the importance of structure, organization, and careful planning. The teachers insisted that respect and love of children was a primary requisite for success. Anderson (1982) reported that the literature links climate with clearly defined goals and objectives, teacher commitment, teacher and administrator expectations, cooperation, and peer norms. Lezotte (1980) cited the importance of teacher expectations for self and students, the management and monitoring of student opportunity to learn, teacher classroom organization, and teacher reward system.

Learning Time and Teaching Effectiveness

Time-on-task, the amount of actual time spent learning (as contrasted with total time in class), has been studied since the mid 1970s as a component of compensatory education programs and the evaluative studies of beginning teachers. Researchers have identified three distinct types of learning time:

- *Allocated time*—time scheduled for a subject or learning activity.
- *Engaged time*, or *time-on-task*—amount of time students actually spend in appropriate learning activities to reach a set learning goal. Time not spent in appropriate learning activities is called, appropriately, time-off-task.
- *Academic learning time*—amount of time students are successfully engaged in learning tasks and moving toward goals at appropriate levels of difficulty.

Instructional time can be increased. Davidson and Holley (1979), after following 227 Austin, Tex., students for an entire day, found that 20 percent of each school day is devoted to such noninstructional activities as intercom announcements, waiting for teacher instruction, and moving from one class to another. What remained was three and three-quarter hours of actual learning time. The researchers repeated the study after working with the teachers on class management and found that 23 to 34 minutes were added to the school day—a gain of 65 to 95 hours of instruction per year.

Research suggests that time-on-task is related to achievement. The more time students spend on task, the more they learn (Bloom, 1976). A smaller amount of evidence suggests that this relationship is causal in nature. Evidence also exists, primarily at the elementary level, that greater amounts of allocated time and academic learning time are associated with higher achievement (Fisher et al., 1978).

Two instructional approaches in particular are associated with high levels of time-on-task. The first approach, mastery learning, is based on a theoretical model proposed by Benjamin Bloom in 1968. The second approach, direct instruction (Rosenshine, 1979), is the result of a synthesis of classroom research studies that have focused on increasing time-on-task as well as achievement.

Learning Styles and Teaching Effectiveness

Some researchers have taken a different approach to the study of learning and achievement. For example, Dunn and Dunn (1978), explore the relationship between academic achievement and student learning style.

Dunn and Dunn confirm that most students (and adults too), are not auditory learners; they are visual or tactual/kinesthetic. These reseachers found that fully one-third of the students learn better by tactual and/or kinesthetic methods (touching, doing, or experiencing), and yet lecturing persists as a dominant instructional mode.

Letteri (1982) stated that "most areas of educational research have only an indirect relationship to the process of learning, whereas the study of cognition provides a direct link not only to the learning process but to remediation and generalization procedures." Using a cognitive profile, he assessed a group of math students on seven control dimensions: analytical-global; complexity; reflectiveness-impulsivity; scanning-focusing; breadth of category; leveling-sharpening; and tolerance for ambiguity.

After six months of remedial work ("augmentation") based on the cognitive profile, the experimental group averaged a gain of 3.65 grade levels. The control group showed only a .75 grade level increase, demonstrating that profiles can be changed and skills transferred to subject area learning. High, average, and low achieving students can be identified on the basis of their cognitive styles; and 80 percent of the difference in standardized test scores can be accounted for by the seven cognitive controls, according to Letteri.

Whether the research focuses on learning or cognitive style, it is clear that effective teachers know their students' abilities, skills, and learning style, and plan appropriate learning activities for them.

What Is Effective Teaching?

Effective teachers have well-organized and well-managed classrooms. Students know what is expected, what they are supposed to do, and what equipment, if any, they will need. Transitions from one activity to another are accomplished quickly and with a minimum of teacher direction. Students listen to and respond to teacher presentations. Activities move at a brisk pace. Students, when required to work on their own, know what to do and go about the work in a businesslike way. Students know how to transfer skills. They also know what behavior is permissible in the classroom and the school.

The effective teacher knows what is going on in all parts of the classroom. An orderly atmosphere is maintained. Effective classroom managers prevent problems from happening through good preparation. Good classroom management is important because it allows the teacher to spend more time helping students learn. Effective teachers do a great deal of planning to establish conditions that are conducive to effective learning. In their planning, they use their knowledge of the students' skills, previous learning, and learning style to create an environment that is most effective for each student (NASSP, 1979).

In summary, the effective teacher is characterized by some or all of the following:

- *Planning and Preparation*
  The teacher:
  - Knows the students—what knowledge, skills, styles they possess;
  - Identifies how each student learns best;
  - Does careful planning and preparation for classes with special emphasis on the first day and the first week of a segment of instruction;
  - Exhibits high expectations for student achievement.
- *Classroom Management*
  The teacher:
  - Makes clear the rules, consequences, and procedures on the first day, and adheres to these rules consistently throughout the year;
  - Provides for a high rate of correct answers by using learning activities that are neither too easy nor too difficult for students;
  - Keeps students on academic tasks and promotes extensive content coverage;
  - Remediates individual learning deficiences with specific transferable skills;
  - Provides a role model for students by a businesslike approach to teaching;
  - Uses direct instruction with the whole class or small groups when teaching for basic skill mastery;

- Creates a supportive learning atmosphere by showing concern and respect for each student.

- *Evaluation*
  The teacher:
  - Monitors student performance during recitation or individual work sessions;
  - Recognizes student accomplishment;
  - Provides individualized feedback to students when needed;
  - Follows up on student assignments by grading and returning assignments in timely fashion.

What Can the Principal Do?

A statement by Fred Hechinger of the *New York Times* effectively summarizes the importance of the principal: "Over the years as a reporter, I have never seen a good school with a poor principal or a poor school with a good principal. I have seen unsuccessful schools turned around into successful ones, and, regrettably, outstanding schools slide rapidly into decline. In each case the rise or fall could readily be traced to the quality of the principal" (Lipham, 1981).

This statement reflects what every study of effective schools has concluded: *Effective administrative leadership is the key to establishing and maintaining a climate conducive to academic learning and achievement.* Principals can help teachers to optimize student achievement in a number of ways.

- *Effective School Climate*
  The principal should:
  - Set academic achievement as a primary goal;
  - Ensure that all members of the school community understand the importance of teaching;
  - Reduce intrusions and disruptions (interruptions make it easy for students to get off task);
  - Develop a follow-up system for students who are tardy, absent, or disruptive;
  - Be consistent in enforcing rules, regulations, and policies;
  - Establish a school-wide approach to discipline;
  - Hold high expectations of self, teachers, and students.

- *Supportive Administrative Behavior*
  The principal should:
  - Create an atmosphere where staff members can openly discuss teaching with colleagues;
  - Remain current with research on teaching effectiveness, and communicate this information to teachers

- Assist in publicizing student accomplishments;
- Provide student information to teachers;
- Encourage teachers to share their strategies for keeping students on task;
- Use teaching effectiveness as a continual theme for inservice programs;
- Work closely with beginning teachers on skills needed to become more effective.

A Word of Caution

Most of the research on school effectiveness has been conducted at the elementary school level, and largely in urban settings. It has focused on basic skills instruction. Since there are significant organizational differences between elementary, middle, and secondary schools, generalizing from one level of research to another is at best problematic. Studies conducted by Research for Better Schools (RBS), the regional educational laboratory in Philadelphia, highlight these differences. RBS cautions that "the basic organizational structure at the secondary level may necessitate different approaches to improving effectiveness and even different definitions of effectiveness."

Firestone and Herriott (1982) inventoried teachers in an RBS study of 27 elementary and 23 secondary schools in southeastern Pennsylvania. The schools range from urban to rural and reflect the diversified picture of schooling that is representative of American education. Elementary teachers in the study agreed significantly more often than did their secondary counterparts on instructional goals, particularly on the importance of emphasizing basic skills. High school subject area departmentalization seems to make consensus at that level more difficult.

Elementary principals also seem to have more opportunity to exercise instructional leadership than do secondary principals. Both school size and subject matter complexity seem to be factors in the difference. Presseisen (1982) has pointed out that differing characteristics of elementary and secondary students further complicate generalizations from one level to another.

The research reported in this review *deals with effectiveness studies conducted at the middle level or in senior high schools.* This research supports the importance of effectiveness of classroom management, teacher expectations, school climate, learning time, and cognitive/learning style. But the small number of studies beyond the elementary level to date demands that our conclusions remain tentative. It is likely that the promising results achieved at the elementary level will not always be replicated at the secondary level.

One must remember that the current definition of effectiveness

focuses on one or two content areas (math and/or reading basic skills), and for a limited clientele (urban poor). A more precise definition of effectiveness is needed, as well as a wider testing of the correlates of effectiveness at the secondary level.

As more is learned about teacher behavior and its relationship to student achievement, the more likely it is that the goals of schooling will be met; the more likely it is that all students will achieve their potential.

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